

AMENDMENTS TO THE CLAIMS

1-3. (Canceled)

4. (Currently amended) A valve timing change apparatus for changing open-close timing of an intake valve or an exhaust valve of an internal combustion engine, by changing the relative angular position in the rotating direction between a cam shaft which drives said valve and a rotational drive member which receives rotational drive force of a crank shaft to rotate said cam shaft, comprising:

an angle change mechanism configured to change and hold the relative angular position between said cam shaft and said rotational drive member by oil pressure;

an oil pressure generating mechanism configured to generate oil pressure for driving said angle change mechanism by relative rotation; and

a drive member configured to generate relative rotation at said oil pressure generating mechanism;

~~The valve timing change apparatus according to any one of claims 1 through 3 claim 1, wherein said angle change mechanism has a first rotate rotary member rotating integrally rotatable with said rotational drive member and a second rotate rotary member rotating integrally rotatable with said cam shaft;~~

~~wherein said first rotate rotary member and said second rotate rotary member define an advancing oil chamber and a retarding oil chamber to and from which the operating oil is charged and discharged, to rotate said cam shaft to the advancing side or the retarding side against said rotational drive member;~~

~~wherein said oil pressure generating mechanism has a rotor defining configured to define an expansion-compression room of the operating oil while rotating and to rotate integrally with said first rotate rotary member, and a casing rotatably supported so that said rotor sucks and ejects the operating oil with relative rotation to said casing; and~~

~~wherein said drive means member has an electromagnetic coil for generating electromagnetic force to exert braking torque to said casing for suppressing rotation.~~

5. (Original) The valve timing change apparatus according to claim 4, wherein said oil pressure generating mechanism has a connecting passage for sucking the operating oil charged into one of said advancing oil chamber and said retarding oil chamber, and ejecting the operating oil towards the other of said advancing oil chamber and said retarding oil chamber.

6. (Currently amended) The valve timing change apparatus according to claim 5, wherein said oil pressure generating mechanism is disposed adjacent to said first ~~rotate~~rotary member, and said connecting passage is formed at said first ~~rotate~~rotary member.

7. (Currently amended) The valve timing change apparatus according to claim 6, wherein said connecting passage comprises a first annular passage and a second annular passage formed approximately coaxially to said cam shaft and respectively connected to a ~~suck~~suction port and an ~~eject~~exhaust port of said oil pressure generating mechanism, and a first piercing hole and a second piercing hole respectively connecting said first annular passage and said second annular passage respectively to said retarding oil chamber and said advancing oil chamber.

8. (Currently amended) The valve timing change apparatus according to claim 4, wherein said rotor has an inner rotor directly connected to said first ~~rotate~~rotary member, and an outer rotor defining the expansion-compression room of the operating oil with said inner rotor.

9. (Canceled)

10. (Currently amended) The valve timing change apparatus according to claim 211, wherein the ~~angle~~angular position of said cam shaft against said rotational drive member moves in one direction by oil pressure and in the other direction by spring force.

11. (Currently amended) A valve timing change apparatus for changing open-close timing of an intake valve or an exhaust valve of an internal combustion engine, by changing the relative angular position in the rotating direction between a cam shaft which drives said valve and a rotational drive

member which receives rotational drive force of a crank shaft to rotate said cam shaft, comprising:

an angle change mechanism configured to change and hold the relative angular position between said cam shaft and said rotational drive member by oil pressure;

an oil pressure generating mechanism configured to generate oil pressure for driving said angle change mechanism by relative rotation; and

a drive member configured to generate relative rotation at said oil pressure generating mechanism;

wherein said angle change mechanism, said oil pressure generating mechanism, and said drive member are arranged coaxially to said cam shaft;

~~The valve timing change apparatus according to claim 2,~~

wherein said angle change mechanism has a first ~~rotate~~rotary member rotating integrally rotatable with said rotational drive member and a second ~~rotate~~rotary member rotating integrally rotatable with said cam shaft;

wherein said first ~~rotate~~rotary member and said second ~~rotate~~rotary member define an advancing oil chamber and a retarding oil chamber to and from which the operating oil is charged and discharged, to rotate said cam shaft to the advancing side or the retarding side against said rotational drive member;

wherein said oil pressure generating mechanism has a rotor defining an expansion-compression room of the operating oil while rotating integrally with said first ~~rotate~~rotary member, and a casing rotatably supported so that said rotor sucks and ejects the operating oil with relative rotation to said casing; and

wherein said drive ~~means~~member has an electromagnetic coil for generating electromagnetic force to exert braking torque to said casing for suppressing rotation.

12. (Currently amended) A valve timing change apparatus for changing open-close timing of an intake valve or an exhaust valve of an internal combustion engine, by changing the relative angular position in the rotating direction between a cam shaft which drives said valve and a rotational drive member which receives rotational drive force of a crank shaft to rotate said cam shaft, comprising:

an angle change mechanism configured to change and hold the relative angular position

between said cam shaft and said rotational drive member by oil pressure;
an oil pressure generating mechanism configured to generate oil pressure for driving said
angle change mechanism by relative rotation; and
a drive member configured to generate relative rotation at said oil pressure generating
mechanism;

wherein the angular position of said cam shaft against said rotational drive member moves
in one direction by oil pressure and in the other direction by spring force;

The valve timing change apparatus according to claim 3,

wherein said angle change mechanism has a first ~~rotate~~rotary member ~~rotating~~ integrally
~~rotatable~~ with said rotational drive member and a second ~~rotate~~rotary member ~~rotating~~ integrally
~~rotatable~~ with said cam shaft;

wherein said first ~~rotate~~rotary member and said second ~~rotate~~rotary member define an
advancing oil chamber and a retarding oil chamber to and from which the operating oil is charged
and discharged, to rotate said cam shaft to the advancing side or the retarding side against said
rotational drive member;

wherein said oil pressure generating mechanism has a rotor ~~defining~~configured to define an
expansion-compression room of the operating oil ~~while rotating and~~ rotate integrally with said first
~~rotate~~rotary member, and a casing rotatably supported so that said rotor sucks and ejects the
operating oil with relative rotation to said casing; and

wherein said drive ~~means~~member has an electromagnetic coil for generating electromagnetic
force to exert braking torque to said casing for suppressing rotation.

13. (Currently amended) The valve timing change apparatus according to claim 5, wherein said rotor has an inner rotor directly connected to said first ~~rotate~~rotary member, and an outer rotor defining the expansion-compression room of the operating oil with said inner rotor.

14. (Currently amended) The valve timing change apparatus according to claim 6, wherein said rotor has an inner rotor directly connected to said first ~~rotate~~rotary member, and an outer rotor defining the expansion-compression room of the operating oil with said inner rotor.

15. (Currently amended) The valve timing change apparatus according to claim 7, wherein said rotor has an inner rotor directly connected to said first ~~rotate~~ rotary member, and an outer rotor defining the expansion-compression room of the operating oil with said inner rotor.

16. (Currently amended) The valve timing change apparatus according to claim 211, wherein said angle change mechanism has an oil passage to introduce lubricating oil of an internal combustion engine.

17. (Currently amended) The valve timing change apparatus according to claim 312, wherein said angle change mechanism has an oil passage to introduce lubricating oil of an internal combustion engine.

18. (Previously presented) The valve timing change apparatus according to claim 4, wherein said angle change mechanism has an oil passage to introduce lubricating oil of an internal combustion engine.

19. (Previously presented) The valve timing change apparatus according to claim 5, wherein said angle change mechanism has an oil passage to introduce lubricating oil of an internal combustion engine.

20. (Previously presented) The valve timing change apparatus according to claim 6, wherein said angle change mechanism has an oil passage to introduce lubricating oil of an internal combustion engine.

21. (Previously presented) The valve timing change apparatus according to claim 7, wherein said angle change mechanism has an oil passage to introduce lubricating oil of an internal combustion engine.

22. (Previously presented) The valve timing change apparatus according to claim 8, wherein

said angle change mechanism has an oil passage to introduce lubricating oil of an internal combustion engine.